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TWO CASES OF THE RADICAL CURE OF HERNIA.[1]

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G. B., male, farmer, aged forty-one, was admitted to the wards of the German Hospital on the evening of March 27, 1888, with the following history: For ten or fifteen years he had had a large swelling occupying the right half of the scrotum and extending upward to the neighborhood of the internal abdominal ring. During all this time this swelling had never entirely disappeared, although it varied in size and consistency. He had suffered no great inconvenience from it, except that due to its bulk, until about thirty-six hours previous to his admission, at which time it had suddenly become painful, much increased in tension, and a groove or furrow had developed midway between the base of the swelling and its origin above Poupart's ligament. The whole scrotal tumor was very tense, and nothing beneath the skin could be distinctly felt on palpation, though the lower portion gave the impression of containing fluid. There was a certain amount of resonance on percussion from the middle to the upper part of the swelling, the lower third being dull. In addition

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to the local symptoms, the man at the time of his admission into the hospital had persistent retching and vomiting, which had then lasted for twenty-four hours; the matters ejected were fluid, sour, offensive, but not distinctly feculent. A diagnosis of complete oblique inguinal hernia, strangulated in the sac, was made, and herniotomy was proceeded with.

A long incision was made beginning an inch above the situation of the internal ring and extending obliquely to the base of the tumor. The usual layers of tissue were divided until the sac was reached and opened. A constriction was found, as had been expected, at the point where the transverse groove was situated, which was due to bands of infiltrated lymph binding the inner surface of the sac to the closely adherent intestine. It was with great difficulty that the extreme tip of the finger-nail could be inserted at this point to serve as a guide for the probe-pointed bistoury, which was made to follow the finger and finally to divide a portion of these bands. Finding the constriction remaining, it became necessary to dissect down carefully from the outside, with light touches of the bistoury, until the lymph bands were completely divided; after this the separation of the bowel from the interior of the sac became comparatively easy, and was accomplished by the fingers without the aid of other instruments. At the level of both rings the intestine was found entirely free. As soon as the knuckle of gut below the constriction was drawn into view it was followed by an extensive gush of fluid, slightly blood-stained, and resembling that seen in hydrocele. The finger, following the sac to its base, easily recognized a rounded glandular mass about the size of a walnut, which was at first thought to be an atrophied testicle, this view being apparently supported by the exist-

ence of a fleshy cord in the sac extending its full length, emerging from the upper ring and running to the gland mentioned, and containing a hard wire-like body which was then thought to be the vas deferens, and certainly was absolutely indistinguishable from that duct by the sense of touch.

At this juncture it was very natural to suppose that the hernia was of the congenital variety, the sac of the hernia and the tunica vaginalis being continuous. The existence of the supposed cord and the large quantity of fluid, together with the history of the case, all favored this view. A little later, however, all tension being then removed and the scrotal tissues easily subjected to palpation, both testicles were found to be *in situ*, the one on the affected side being below and behind the region exposed by the operation. Closer inspection then revealed the fact that the supposed testicle was an enlarged, indurated mesenteric gland communicating with a lymphatic vessel, also greatly enlarged and indurated by long-continued inflammation, giving it its wire-like feel; the fleshy tissue, thought to be the cord, proved to be a mass of omentum, which during its many years of irreducibility had become rounded and agglutinated so that it had lost all its special characteristics. This was ligated high up and removed, together with the enlarged gland. During this portion of the operation the constricted knuckles of gut, which when first brought into view had been black, crepitant and distinctly offensive in odor, had rested on the upper portion of the thigh of the patient, covered with hot carbolized towels, and had gradually recovered their normal color and consistence to such a degree that I resolved to return them to the abdomen. After doing this the upper portion of the sac and its neck were

with considerable difficulty separated from the surrounding structures, careful dissection with the scalpel and the finger being required. The sac was then drawn strongly downward from the internal ring, and was tied with a stout silk ligature half an inch above the upper line of the incision which had been made into it. The ends of this were left long and threaded through stout curved needles. One of the threads was then carried up the canal, through one of the walls of the internal ring, and through the abdominal wall above and external to the internal ring, and the other carried through the opposite edge of the internal ring and through the abdominal wall, the skin being pulled aside in both cases, so that the sutures passed only through the fascial and muscular layers. These threads were then brought together and tightly knotted, thus fixing the stump of the sac in the internal ring, and at the same time almost completely closing the latter. The operation up to this point was practically that recommended by Mr. Barker, of University College, London.

Attention being then directed to the fundus of the sac, which remained *in situ*, it was found greatly thickened and tightly adherent to every portion of the surrounding tissues. The patient's condition not being good and there being no special advantage, as it appeared to me, in the removal of the fundus, this was left undisturbed. The tissues on either side were then stitched together by catgut sutures, excluding the skin. The wound then presented through its upper two-thirds two broad fleshy walls which seemed admirably adapted for rapid union.

Up to this point I had thought of concluding the operation after the method of Dr. Charles McBurney, of New York, leaving the wound open after sewing

together on each side the various layers forming the abdominal wall, excluding, of course, the transversalis fascia and the peritoneum, and then packing it with iodoform gauze; but, as I have stated, the prospect of obtaining rapid union through the upper two-thirds then appeared to me so good that I brought all that portion together by closely applied interrupted catgut stitches, having first laid in the depths of the wound some strands of chromicized catgut to provide for drainage. The lower third, communicating with the remains of the fundus of the sac, was left open, and was filled with long strips of iodoform gauze.

Full antiseptic measures were employed throughout the entire operation, which was then completed by the application of antiseptic dressings, consisting of wet sublimate gauze, sublimate cotton and an antiseptic spica bandage. The patient recovered without a bad symptom. He was extremely restless at first, and a few drops of pus formed and discharged at the upper angle of the wound, which everywhere else united by first intention throughout its entire extent. The cavity at the bottom of the sac rapidly disappeared through contraction of the dartos and the scrotal tissues and obliteration of the sac by granulation. The patient had several large movements of the bowels within the first three days, and has never since had the least abdominal distention, swelling or tenderness. The temperature and pulse have been normal since forty-eight hours after the operation.

The patient is now, ten weeks after the operation, up and about, with a solid linear cicatrix, wearing no truss or other support, the use of which after operations for the radical cure of hernia I believe to be un-

philosophical. With the exception of the scar, there is but a trifling difference between the two sides of his abdomen in the region of the hernia; and although it is too early to add the case to the list of successful operations, there is, as yet, certainly no return of the hernia. There is, however, a spot above the middle of Poupart's ligament at which the abdominal walls seem thinned and weak, and it may be that a hernial protrusion will make its appearance after he resumes his work.

It is, as yet, uncertain whether the statement of Leisrink, that the radical operation is less apt to be followed by relapses in cases of strangulated hernia than when done in other cases not complicated by strangulation, can be accepted as proven.

Weir's statistics, on the contrary, show that in operations on free or non-strangulated hernias relapses occur in 47 per cent., while in 138 cases of strangulated hernia operated on by Andaregg, Macewen and Reichel, 49 per cent. relapsed. The interesting question, therefore, whether strangulation, or the inflammation and thickening of the sac which accompanies it, increases, as may be possible, the chances of rapid and thorough adhesion of the structures about the inguinal canal, and should, therefore, increase correspondingly the probability of securing a permanent result, must be regarded as yet undecided. Setting aside the factor of strangulation, the present case can hardly be considered a favorable one. The extensive adhesions, the age of the patient, the size of the tumor, the great distention of the abdominal rings, the involvement of the omentum, the

doubtful condition of the gut and the extensive secreting surface which it was necessary to leave behind were distinctly unfavorable elements. The conclusion of the distinguished French surgeon, M. Socin, which was announced at the recent French Surgical Congress, and concurred in by all present, that "the chances are better in proportion to the youth of the patient, the smallness of the hernia and the shortness of duration," is that of all practical surgeons, and, as I have remarked, all these factors are absent in this case. Another opinion also expressed by him on the same occasion is at the present time as widely accepted, viz., that the operation for radical cure is the necessary complement of all kelotomies performed for strangulation, excepting only the cases in which the intestine cannot or should not be reduced.

In regard to the technique of the operation, the most important points to be noted are the treatment of the sac, the treatment of the rings and the edges of the canal and the employment or non-employment of pressure by truss or otherwise. Macewen's operation, in which the whole sac is retained, and after careful dissection folded upon itself by means of a ligature passed through it longitudinally, and is then stitched to the internal abdominal ring, has always seemed to me to have two objections: 1st, it requires a complete dissection of the entire sac, often a tedious procedure, and one which prolongs the operation at a period when it is desirable to complete it as soon as possible; 2d, although it is said to form a plug or buttress for the internal ab-

dominal ring, it certainly leaves that portion or pouch of peritoneum more or less distinct, and to that extent favors a return of the hernia.

In the operation of excision of the sac, if strong traction be made at the time of applying the ligature, all trace of the hernial pouch of peritoneum may at once be obliterated, as may be readily demonstrated on the cadaver. A comparatively smooth surface is left with the minimum amount of cicatricial tissue. Macewen's plug consists largely of inflammatory lymph which unites the folds or layers of the sac, and finally becomes scar tissue, which always and everywhere throughout the body tends to break down and become absorbed under pressure. For these reasons I believe excision of the sac to be preferable. Twisting of the sac, as recommended by Mr. Stokes, is open to the objections to which attention has been called by Dr. McBurney, that a portion of adherent intestine might be drawn into the twisted canal, or a rupture of the peritoneum might result. To counterbalance these dangers I see no advantage whatever to be derived from this plan over that of excision and ligature of the sac. As to the treatment of the rings and edges of the canal, I believe that the bringing together of the separate layers on either side of the canal, with the idea of securing the union of their edges, is less efficient than the plan which I have above described.

The broad, fresh surface which is thereby obtained offers a greater probability of rapid union by adhesive inflammation than when the thin layers of fascia and muscle are stitched separately. Then, too, if

union should not be obtained by this plan, the wound is left in good condition for the employment of McBurney's method and can be readily packed with iodoform gauze at any period after the operation. As to the subsequent employment of the truss, the same principle which I have mentioned as offering an argument against Macewen's method—namely, the ready disappearance of cicatricial tissue under pressure—seems to me to constitute a valid objection. The whole operation may now be said to be on trial before the profession, and each case has a distinct value, and should be carefully recorded and considered.

In those hernias in which the vaginal process of the peritoneum remains patulous and the hernia lies in contact with and surrounds a testicle, the problem of effecting a radical cure is manifestly complicated. The ordinary plans are inapplicable, as the sac of the hernia surrounding the cord and testicle can neither be folded up after Macewen's plan, nor ligated and excised. It is directed in these cases (Barker, *Operative Surgery*) to divide the sac in the middle and then close up the lower part by a few stitches, so that it may form a tunica vaginalis. The upper portion is then to be sealed up posteriorly, allowing the cord to escape behind it, after which it is closed up by stitching, and may then be treated by any of the ordinary methods. It has always appeared to me that this must necessarily leave a weak point in the neighborhood of the cord and that the effacement of the hernial pouch must be more or less incomplete.

For these reasons in a certain proportion of cases, especially those in which a congenital hernia is complicated with a retained testicle, it seems justifiable to sacrifice the latter organ, particularly, of course, if it be atrophied. The following case will illustrate this point:

C. B., a man, twenty years of age, was admitted to the German Hospital on the evening of May 5th, suffering with strangulated, oblique, complete inguinal hernia of the right side. With the exception of the knuckle of gut which it contained, the scrotum on this side was empty, and it appeared that when the hernia was reduced the right testicle could be felt in the inguinal canal. It frequently gave him great pain and distress, and the hernia was very difficult to retain on account of the presence of the testicle, the truss exciting swelling and inflammation; for the same reason the attacks of strangulation had been frequent. On this occasion the pain was agonizing and unbearable, and both the patient and his family, who accompanied him, agreed that the prevention of other recurrences was worth any risk. Herniotomy being performed in the usual manner, the small, immature testicle was discovered lying in the inguinal canal near the external abdominal ring and held in place by bands of recent inflammatory lymph. The sac, *i. e.*, the tunica vaginalis, contained a large quantity of fluid and ten or fifteen inches of much congested intestine. The stricture, which was at the internal ring, was divided and the gut easily reduced. On account of the history which the patient had given, and for the reasons stated above, the cord was then ligated as high as possible, the stump returned to the abdomen, and

the remaining portion, together with the testicle, removed. This allowed the upper portion of the sac to be pulled strongly down and ligated, after which the remainder was easily dissected out with the finger, as in cases of castration. Catgut drainage was used, the wound brought together after the method I have described above, the layers in each wall of the wound being first stitched to each other, and the whole wound approximated afterward. Union by first intention under one dressing followed, and the patient was left with a firm cicatrix, and at the present time, five weeks after the operation, without the slightest remains of the hernial tumor.